

# Vocabulary index

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## Vocabulary tags

## Vocabulary authors

## Children from resource:core

### VocabularySummary

<a href="#">alien</a>	C library interface
<a href="#">arrays</a>	Fixed-size arrays
<a href="#">assocs</a>	Associative structure protocol
<a href="#">bootstrap</a>	bootstrap vocabulary
<a href="#">byte-arrays</a>	Efficient fixed-length byte arrays
<a href="#">byte-vectors</a>	Growable byte arrays
<a href="#">checksums</a>	Checksum protocol and implementations
<a href="#">classes</a>	Object system implementation
<a href="#">combinators</a>	Complex conditionals (cond, case) and generalized dataflow combinators (cleave, spread)
<a href="#">compiler</a>	Factor's optimizing machine code compiler
<a href="#">continuations</a>	Capturing and restoring continuations, catching errors
<a href="#">definitions</a>	Definition protocol and cross-referencing
<a href="#">destructors</a>	Object destructors
<a href="#">effects</a>	Stack effects as first-class data types
<a href="#">generic</a>	Generic word implementation
<a href="#">graphs</a>	Directed graphs
<a href="#">growable</a>	Low-level implementation of vectors and string buffers
<a href="#">hash-sets</a>	hash-sets vocabulary
<a href="#">hashtables</a>	Associative structure with expected constant time lookup
<a href="#">init</a>	Startup and initialization hooks
<a href="#">io</a>	Stream protocol
<a href="#">kernel</a>	Data and control flow, basic object protocol
<a href="#">layouts</a>	Low-level in-memory object layout introspection

<b>lexer</b>	Factor source code lexer
<b>make</b>	Sequence construction utility
<b>math</b>	Arithmetic
<b>memory</b>	Heap introspection support
	Dynamically-scoped variables
<b>namespaces</b>	
<b>parser</b>	Factor source code parser
	Code quotations, essentially executable fixed-size arrays
<b>quotations</b>	
<b>sbufs</b>	Growable string buffers
	Sequence protocol, combinators and utilities
<b>sequences</b>	
<b>sets</b>	Set-theoretic operations on sequences
<b>slots</b>	Low-level object introspection support
<b>sorting</b>	Merge sort for sequences
	Support for tracking loaded source files
<b>source-files</b>	
<b>splitting</b>	Splitting sequences and grouping sequence elements
<b>strings</b>	Fixed-size character arrays
<b>syntax</b>	Standard Factor syntax
<b>system</b>	OS and CPU queries and other system-level tasks
<b>vectors</b>	Growable arrays
<b>vocabs</b>	Vocabularies are collections of words loaded from a source file
<b>words</b>	Words are the fundamental units of code

## Children from resource:basis

### Vocabulary Summary

<b>alarms</b>	alarms vocabulary
<b>alien</b>	C library interface
<b>ascii</b>	ASCII character classes
<b>atk</b>	Atk binding
<b>base64</b>	Base64 encoding/decoding
<b>biassocs</b>	Bidirectional assocs
	Fast searching of sorted arrays
<b>binary-search</b>	
<b>bit-arrays</b>	Fixed-size bit arrays
<b>bit-sets</b>	Efficient bitwise operations on bit arrays
	Growable bit arrays
<b>bit-vectors</b>	
	Reading sequences of bits from a byte stream
<b>bitstreams</b>	
	bootstrap vocabulary

## **bootstrap**

**boxes** An abstraction for enforcing a mutual-exclusion invariant  
Efficient fixed-length byte arrays

## **byte-arrays**

**cache** An associative mapping whose entries expire after a while

**cairo** Cairo graphics library binding

**calendar** Operations on timestamps and durations

**channels** Communicating Sequential Processes  
Checksum protocol and implementations

## **checksums**

**circular** Virtual sequence presenting a rotation of an underlying sequence

**classes** Object system implementation

**cocoa** Objective C/Cocoa bridge

**colors** Colors as a first-class data type

**columns** Virtual sequence view of a matrix column

**combinators** Complex conditionals (cond, case) and generalized dataflow  
combinators (cleave, spread)  
Command line argument parsing

## **command-line**

**compiler** Factor's optimizing machine code compiler  
compression vocabulary

## **compression**

concurrency vocabulary

## **concurrency**

Binding to Mac OS X CoreFoundation library

## **core-foundation**

Binding to Mac OS X Core Graphics library

## **core-graphics**

**core-text** Binding for Mac OS X Core Text library

**cpu** cpu vocabulary

**csv** CSV parser

**db** Relational database abstraction layer

**debugger** Printing errors, inspecting tracebacks, restarts  
Definition protocol and cross-referencing

## **definitions**

**delegate** Delegation and mimicking on top of the Factor object system

**deques** Double-ended queue protocol and common operations  
An efficient implementation of the disjoint-set data structure

## **disjoint-sets**

**dlists** Double-linked lists/deques

**documents** Mutable structure for storing a plain text document being edited in memory

**editors** Editor integration

<b>endian</b>	Utilities for working with big-endian and little-endian data
	Environment variables
<b>environment</b>	
<b>eval</b>	Ad-hoc evaluation of strings of code
<b>farkup</b>	Simple markup language for generating HTML
<b>fonts</b>	Fonts as a first-class data type
<b>formatting</b>	Format data according to a specified format string, and writes (or returns) the result string.
<b>fry</b>	Syntax for pictured partial application and composition
<b>ftp</b>	Common code shared by FTP client and server
<b>functors</b>	First-class syntax
<b>furnace</b>	Furnace web framework
<b>game</b>	game vocabulary
<b>gdk</b>	Gdk binding
<b>generalizations</b>	Generalized stack shufflers and combinators to arbitrary numbers of inputs
<b>gio</b>	GIO binding
<b>glib</b>	GLib binding
<b>globs</b>	Unix shell-style glob pattern matching
<b>gmodule</b>	GModule binding
<b>gobject</b>	GObject binding
	GObjectIntrospection support
<b>gobject-introspection</b>	
<b>grouping</b>	Grouping sequence elements into subsequences
<b>gtk</b>	Gtk binding
<b>hash2</b>	Special-purpose fixed-size hashtable where keys are pairs of integers
	Associative structure with expected constant time lookup
<b>hashtables</b>	
<b>heaps</b>	Maxheap and minheap implementations of priority queues
<b>help</b>	Online help system
<b>hints</b>	Syntax sugar for the Factor compiler's specializer hints facility
<b>html</b>	HTML utilities
<b>http</b>	Common code shared by HTTP client and server
<b>images</b>	Bitmap images
<b>inspector</b>	Terminal-based object viewer and editor
	Interpolating variable values into strings
<b>interpolate</b>	
	Interval maps for disjoint closed ranges
<b>interval-maps</b>	
<b>inverse</b>	Invertible quotations
<b>io</b>	Stream protocol

<b>iokit</b>	Bindings to Apple IOKit device interface
<b>json</b>	JSON reader and writer
<b>lcs</b>	Levenshtein distance and diff between sequences
<b>libc</b>	Manual memory management for interfacing with C
	Assocs that yield items in insertion order
<b>linked-assocs</b>	
<b>listener</b>	Terminal-based interactive code evaluator
<b>lists</b>	Implementation of lisp-style linked lists
<b>literals</b>	Expression interpolation into sequence literals
<b>locals</b>	Efficient named local variables and lexical closures
<b>logging</b>	Logging framework with support for log rotation and machine-readable logs
<b>macros</b>	Utility for defining compiler transforms
<b>match</b>	ML-style pattern matching
<b>math</b>	Arithmetic
<b>memoize</b>	Memoization
<b>mime</b>	mime vocabulary
<b>mirrors</b>	View any object as an association mapping slots to values
<b>models</b>	Observable slots which can be composed in various ways
<b>multiline</b>	Multiline string literals
	Space-efficient arrays of 4-bit values
<b>nibble-arrays</b>	
<b>nmake</b>	Generalization of make for constructing several sequences simultaneously
<b>none</b>	Dummy module for command-line usage
<b>opengl</b>	OpenGL binding
<b>openssl</b>	OpenSSL binding
<b>pack</b>	Packing and unpacking binary data
<b>pango</b>	Pango binding
<b>peg</b>	Parsing expression grammar and packrat parser
	persistent vocabulary
<b>persistent</b>	
	Porter stemming algorithm
<b>porter-stemmer</b>	
<b>present</b>	Generic word for converting objects to strings for human consumption
	Factor source code prettyprinter
<b>prettyprint</b>	
<b>promises</b>	Lazy thunks
	Quoted printable encoding/decoding
<b>quoted-printable</b>	
<b>quoting</b>	quoting vocabulary
<b>random</b>	Random number generator protocol and implementations

<b>refs</b>	References to keys and values in assocs
<b>regexp</b>	Regular expressions
<b>roman</b>	Roman numerals library
<b>search-deques</b>	Double-ended queues with sub-linear membership testing
<b>see</b>	Printing loaded definitions as source code
	Sequence protocol, combinators and utilities
<b>sequences</b>	
<b>serialize</b>	Binary serialization of arbitrary object graphs
<b>shuffle</b>	Additional shuffle words
	simple-flat-file vocabulary
<b>simple-flat-file</b>	
	simple-tokenizer vocabulary
<b>simple-tokenizer</b>	
<b>smtp</b>	Sending mail via SMTP
<b>sorting</b>	Merge sort for sequences
<b>soundex</b>	Soundex is a phonetic algorithm for indexing names by sound
	Arrays of unboxed primitive C types
<b>specialized-arrays</b>	
	Vectors of unboxed primitive C types
<b>specialized-vectors</b>	
<b>splitting</b>	Splitting sequences and grouping sequence elements
	Stack effect inference
<b>stack-checker</b>	
<b>strings</b>	Fixed-size character arrays
	Suffix arrays
<b>suffix-arrays</b>	
<b>summary</b>	Generic word for converting an object into a brief one-line string
	RSS 1.0, 2.0 and Atom feed parser
<b>syndication</b>	
	Query the operating system for hardware information in a platform-independent way
<b>system-info</b>	
<b>threads</b>	Co-operative threading
<b>timers</b>	One-time and recurring timers for relative time offsets
<b>tools</b>	tools vocabulary
<b>tr</b>	Fast character-to-character translation of ASCII strings
	Efficient arrays of tuples with value semantics for elements
<b>tuple-arrays</b>	
<b>typed</b>	Strongly-typed word definitions
<b>ui</b>	Factor's graphical user interface framework
<b>unicode</b>	Unicode 5.2 support
<b>unix</b>	Bindings to library and system calls found on Unix-like systems

<b>unrolled-lists</b>	Deque implementation with constant-time insertion and removal at either end, and better space efficiency than a double-linked list
<b>urls</b>	Tools for working with URLs (uniform resource locators)
<b>uuid</b>	Generates UUID's.
<b>validators</b>	Value validation for the web framework
<b>values</b>	Global variables in the Forth value style
<b>vectors</b>	Growable arrays
<b>vlists</b>	Persistent sequence implementation optimizing the case where there is no sharing
<b>vm</b>	Layout of the C vm structure
<b>vocabs</b>	Vocabularies are collections of words loaded from a source file
<b>windows</b>	Microsoft Windows CE/XP/Vista API bindings
<b>wrap</b>	Word wrapping
<b>x11</b>	X11 Xlib and GLX bindings
<b>xml</b>	XML reader and writer
<b>xml-rpc</b>	XML RPC client and server
<b>xmode</b>	xmode vocabulary

## Children from resource:extra

Vocabulary	Summary
<b>24-game</b>	24-game vocabulary
<b>alien</b>	C library interface
<b>anagrams</b>	anagrams vocabulary
<b>annotations</b>	Code annotation comment syntax
<b>asn1</b>	ASN.1 parser
<b>assoc-heaps</b>	Priority queue with fast insertion, removal of first element, and lookup of arbitrary elements by key
<b>audio</b>	Framework for reading and playing back audio
<b>backtrack</b>	Simple non-determinism
<b>balloon-bomber</b>	Intel 8080-based Balloon Bomber arcade machine emulator
<b>bank</b>	Bank account simulator for compound interest calculated daily and paid monthly
<b>benchmark</b>	Various benchmarks to test Factor's optimizer
<b>bit</b>	bit vocabulary
<b>bitcoin</b>	bitcoin vocabulary
<b>bloom-filters</b>	bloom-filters vocabulary
<b>boids</b>	Artificial life program simulating the flocking behaviour of birds
<b>boyer-moore</b>	Boyer-Moore string search algorithm

<b>brainfuck</b>	Brainfuck programming language.
<b>bson</b>	BSON ( <a href="http://en.wikipedia.org/wiki/BSON">http://en.wikipedia.org/wiki/BSON</a> ) reader and writer
<b>build-support</b>	build-support vocabulary
<b>bunny</b>	Stanford Bunny OpenGL demo
<b>c</b>	c vocabulary
<b>calendar</b>	Operations on timestamps and durations
<b>cap</b>	cap vocabulary
<b>chess960</b>	chess960 vocabulary
<b>chicago-talk</b>	Slides for a talk at the Pycon VM Summit, Chicago, IL, March 2009
<b>chipmunk</b>	chipmunk vocabulary
<b>classes</b>	Object system implementation
<b>clutter</b>	Clutter binding
<b>codebook</b>	codebook vocabulary
<b>color-picker</b>	Color picker gadget demo
<b>color-table</b>	color-table vocabulary
<b>combinators</b>	Complex conditionals (cond, case) and generalized dataflow combinators (cleave, spread)
<b>compiler</b>	Factor's optimizing machine code compiler
<b>constructors</b>	Utility to simplify tuple constructors
<b>contributors</b>	Contributor patch counts from git
<b>coroutines</b>	Coroutines implementation
<b>couchdb</b>	couchdb vocabulary
<b>cpu</b>	cpu vocabulary
<b>crypto</b>	crypto vocabulary
<b>ctags</b>	Ctags generator
<b>cuda</b>	cuda vocabulary
<b>curses</b>	ncurses binding
<b>cursors</b>	cursors vocabulary
<b>decimals</b>	decimals vocabulary
<b>demos</b>	demos vocabulary
<b>descriptive</b>	Descriptive errors generated automatically for specially defined words
<b>digraphs</b>	Simple directed graph implementation for topological sorting
<b>dns</b>	dns vocabulary
<b>dwarf</b>	dwarf vocabulary
<b>ecdsa</b>	Elliptic Curve Digital Signature Algorithm (OpenSSL realisation)
<b>elf</b>	Constants and structs related to the ELF object format.



<b>env</b>	Access environment variables via the assoc protocol
<b>fjsc</b>	A 'subset of Factor' to Javascript compiler
<b>fluids</b>	fluids vocabulary
<b>fonts</b>	Fonts as a first-class data type
<b>freetype</b>	FreeType text rendering library binding
<b>fuel</b>	fuel vocabulary
<b>fullscreen</b>	fullscreen vocabulary
<b>furnace</b>	Furnace web framework
<b>galois-talk</b>	Slides from a talk at Galois by Slava Pestov, October 2008
<b>game</b>	game vocabulary
<b>gdbm</b>	GNU DataBase Manager
<b>geo-ip</b>	IP address geolocation using database from <a href="http://software77.net/cgi-bin/ip-country/">http://software77.net/cgi-bin/ip-country/</a>
<b>geobytes</b>	City, country, region database using database from <a href="http://www.geobytes.com/GeoWorldMap.zip">http://www.geobytes.com/GeoWorldMap.zip</a>
<b>gestalt</b>	gestalt vocabulary
<b>gesture-logger</b>	Gadget which logs all received gestures, for debugging
<b>google</b>	google vocabulary
<b>google-tech-talk</b>	Slides from Google Tech Talk by Slava Pestov, October 2008
<b>gpu</b>	High-level OpenGL-based GPU resource management and rendering library
<b>graphviz</b>	graphviz vocabulary
<b>grid-meshes</b>	grid-meshes vocabulary
<b>gstreamer</b>	GStreamer binding
<b>gtk-samples</b>	gtk-samples vocabulary
<b>hamurabi</b>	Port of the HAMURABI.BAS game
<b>hashcash</b>	Hashcash implementation
<b>hello-ui</b>	Graphical hello world demo
<b>hello-unicode</b>	Modern "Hello world" which demonstrates various Unicode scripts
<b>hello-world</b>	Textual hello world demo
<b>html</b>	HTML utilities
<b>icfp</b>	icfp vocabulary
<b>id3</b>	id3 vocabulary
<b>images</b>	Bitmap images
<b>infix</b>	Support for infix notation in Factor programs
<b>ini-file</b>	Parses INI configuration files.
<b>io</b>	Stream protocol
<b>irc</b>	irc vocabulary

	javascriptcore vocabulary
<b>javascriptcore</b>	
	Slides from Slava's talk at JVM Language Summit 2009
<b>jvm-summit-talk</b>	
<b>key-handlers</b>	key-handlers vocabulary
<b>key-logger</b>	key-logger vocabulary
<b>koszul</b>	Lie algebra cohomology
<b>lcd</b>	7-segment LCD clock demo
<b>libudev</b>	Bindings to libudev
<b>libusb</b>	Bindings to libusb
<b>lisppaste</b>	XML-RPC interface to <a href="http://paste.lisp.org">http://paste.lisp.org</a>
<b>llvm</b>	llvm vocabulary
<b>log-viewer</b>	Simple log file watcher demo using io.monitors
<b>lua</b>	FFI bindings to the Lua programming language.
<b>lunar-rescue</b>	Intel 8080-based Lunar Rescue arcade machine emulator
<b>macho</b>	Constants and structs related to the Mach object format.
	managed-server vocabulary
<b>managed-server</b>	
<b>mason</b>	Continuous build system for Factor
<b>math</b>	Arithmetic
<b>maze</b>	Maze generator demo
<b>memcached</b>	Provides access to memcached, a high-performance, distributed memory object caching system.
<b>memory</b>	Heap introspection support
<b>merger</b>	merger vocabulary
	BEFORE: and AFTER: syntax for extending methods in class hierarchies
<b>method-chains</b>	
	Slides for a talk at Ruby.mn, Minneapolis, MN, January 2008
<b>minneapolis-talk</b>	
	model-viewer vocabulary
<b>model-viewer</b>	
<b>models</b>	Observable slots which can be composed in various ways
<b>monads</b>	Haskell-style monads
<b>money</b>	Utility for calculating money with rationals
<b>mongodb</b>	MongoDB Factor integration
<b>morse</b>	Converts between text and morse code, and plays morse code.
	Converting MSXML to comma separated values demo
<b>msxml-to-csv</b>	
	Experimental multiple dispatch implementation
<b>multi-methods</b>	
	native-thread-test vocabulary
<b>native-thread-test</b>	

<b>nehe</b>	NeHe OpenGL tutorials ported to Factor
<b>nested-comments</b>	nested-comments vocabulary
<b>noise</b>	noise vocabulary
<b>ntp</b>	Client for NTP protocol
<b>numbers-game</b>	Number guessing game demo
<b>nurbs</b>	NURBS curve evaluation
<b>oauth</b>	oauth vocabulary
<b>ogg</b>	Ogg media library binding
<b>openal</b>	OpenAL 3D audio library binding
<b>opengl</b>	High-level vocabulary for using OpenGL
<b>opengl</b>	OpenGL binding
<b>otug-talk</b>	Slides from a talk at OTUG by Slava Pestov, December 2008
<b>pair-methods</b>	Order-insensitive double dispatch generics
<b>pair-rocket</b>	H{ "foo" => 1 "bar" => 2 } style literal syntax
<b>pairs</b>	Assoc implementation optimized for a single key/value pair
<b>parser-combinators</b>	Haskell-style lazy parser combinators
<b>partial-continuations</b>	Partial continuations - breset/bshift
<b>path-finding</b>	A* path-finding algorithm
<b>peg</b>	Parsing expression grammar and packrat parser
<b>persistence</b>	persistence vocabulary
<b>ping</b>	Uses ICMP to test the reachability of a network host.
<b>poker</b>	Poker hand evaluator
<b>pop3</b>	Retrieve mail via POP3
<b>project-euler</b>	Project Euler example solutions
<b>qtkit</b>	qtkit vocabulary
<b>quadtrees</b>	Quadtree spatial indices
<b>qw</b>	Perlsh syntax for literal arrays of whitespace-delimited strings (qw{ foo bar })
<b>random</b>	Random number generator protocol and implementations
<b>readline</b>	libreadline bindings
<b>readline-listener</b>	A listener that uses libreadline.
<b>redis</b>	Words for communicating with the Redis key-value database
<b>reports</b>	reports vocabulary
<b>resolv-conf</b>	resolv-conf vocabulary
<b>robots</b>	robots vocabulary

<b>roles</b>	Mixins for tuples
<b>rot13</b>	Rot13 demo
<b>rpn</b>	Simple RPN calculator
<b>run-desc</b>	run-desc vocabulary
<b>s3</b>	Amazon S3 Wrapper
	semantic-versioning vocabulary
<b>semantic-versioning</b>	
<b>sequences</b>	Sequence protocol, combinators and utilities
<b>site-watcher</b>	site-watcher vocabulary
<b>slides</b>	Bare-bones tools for giving presentations and demonstrations with the Factor UI
<b>slots</b>	Low-level object introspection support
<b>smalltalk</b>	smalltalk vocabulary
	Intel 8080-based Space Invaders arcade machine emulator
<b>space-invaders</b>	
<b>specialized</b>	specialized vocabulary
<b>spelling</b>	Peter Norvig's spelling corrector
<b>spheres</b>	Draw pixel-perfect spheres using GLSL shaders
<b>spider</b>	spider vocabulary
<b>sudoku</b>	Sudoku solver demo
<b>svg</b>	Parsers for SVG data
<b>synth</b>	Simple sound synthesis using OpenAL.
<b>tar</b>	tar vocabulary
<b>taxes</b>	taxes vocabulary
<b>tc-lisp-talk</b>	tc-lisp-talk vocabulary
<b>terrain</b>	Walk around on procedurally generated terrain
<b>tetris</b>	Graphical Tetris game
<b>time</b>	time vocabulary
<b>time-server</b>	time-server vocabulary
<b>tnetstrings</b>	Reader and writer for "tagged netstrings"
<b>tokyo</b>	tokyo vocabulary
<b>tools</b>	tools vocabulary
<b>trees</b>	Binary search trees
<b>tty-server</b>	Connect to a Factor listener through telnet
<b>turing</b>	Turing machine simulator
<b>twitter</b>	Wrapper for Twitter web service
<b>ui</b>	Factor's graphical user interface framework
<b>units</b>	units vocabulary
<b>update</b>	update vocabulary
<b>usa-cities</b>	usa-cities vocabulary
<b>variables</b>	variables vocabulary

<b>variants</b>	Syntax and combinators for manipulating algebraic data types
<b>vocabs</b>	Vocabularies are collections of words loaded from a source file
<b>vpri-talk</b>	Slides from a talk at VPRI by Slava Pestov, October 2008
<b>webapps</b>	webapps vocabulary
<b>webkit-demo</b>	A simple example showing usage of the Cocoa WebKit framework from Factor
<b>websites</b>	websites vocabulary
<b>window-controls-demo</b>	Open windows with different control sets
<b>wolfram-alpha</b>	Query API for Wolfram Alpha
<b>wordtimer</b>	Microsecond precision code timer/profiler.
<b>yahoo</b>	Yahoo! search example using XML
<b>z-algorithm</b>	Z algorithm for pattern preprocessing
<b>zoneinfo</b>	zoneinfo vocabulary

## Children from resource:work

### Vocabulary Summary

<b>help</b>	Online help system
<b>set-perf</b>	set-perf vocabulary

## Children from /Users/jbenedik/Dev/re-factor

Vocabulary	Summary
<b>99bottles</b>	99bottles vocabulary
<b>accessors</b>	accessors vocabulary
<b>bitly</b>	bitly vocabulary
<b>calc</b>	An infix DSL for calculator expressions.
<b>calc-ui</b>	calc-ui vocabulary
<b>cgi</b>	cgi vocabulary
<b>chat</b>	chat vocabulary
<b>cpu-speed</b>	cpu-speed vocabulary
<b>credit-cards</b>	credit-cards vocabulary
<b>crypt</b>	crypt vocabulary
<b>daytime</b>	daytime vocabulary
<b>dice</b>	dice vocabulary
<b>docs</b>	docs vocabulary
<b>domainr</b>	domainr vocabulary
<b>echo-server</b>	echo-server vocabulary
<b>elapsed</b>	elapsed vocabulary

<b>enigma</b>	enigma vocabulary
<b>euler</b>	euler vocabulary
<b>facebook</b>	facebook vocabulary
<b>factors</b>	factors vocabulary
<b>fake-data</b>	fake-data vocabulary
<b>fast-fib</b>	fast-fib vocabulary
<b>fast-now</b>	Faster, cached-per-millisecond version of "now"
<b>finger</b>	finger vocabulary
<b>fizzbuzz</b>	fizzbuzz vocabulary
<b>flip-text</b>	Turns text upside-down.
<b>fortune</b>	Fortune program to print random quotations.
<b>four-in-a-row</b>	four-in-a-row vocabulary
<b>fuse</b>	fuse vocabulary
<b>fuzzy-match</b>	fuzzy-match vocabulary
<b>gaddafi</b>	gaddafi vocabulary
<b>geonames</b>	geonames vocabulary
<b>github</b>	Github API
<b>google</b>	google vocabulary
<b>gravatar</b>	gravatar vocabulary
<b>growl</b>	growl vocabulary
<b>happy-numbers</b>	happy-numbers vocabulary
<b>hello-ga</b>	Genetic "Hello, World!"
<b>help</b>	Online help system
<b>ideas</b>	ideas vocabulary
<b>ini-file-example</b>	ini-file-example vocabulary
<b>iphone-backup</b>	iphone-backup vocabulary
<b>ipinfodb</b>	IP address geolocation tools.
<b>mail-ui</b>	mail-ui vocabulary
<b>md5-brute-force</b>	md5-brute-force vocabulary
<b>msgpack</b>	msgpack vocabulary
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## Vocabulary authors

### Authors

[Aaron Schaefer](#), [Adam Langley](#), [Alaric Snell-Pym](#), [Alec Berryman](#), [Alex Chapman](#), [Alfredo Beaumont](#), [Anton Gorenko](#), [Ben Schlingelhof](#), [Benjamin Pollack](#), [Bruno Deferrari](#), [Chris Double](#), [Clemens F. Hofreither](#), [Daniel Ehrenberg](#), [Diego Martinelli](#), [Dirk Vleugels](#), [Dmitry Shubin](#), [Doug Coleman](#), [Eduardo Cavazos](#), [Elie Chftari](#), [Eric Mertens](#), [Erik Charlebois](#), [Gavin Harrison](#), [Guillaume Nargeot](#), [James Cash](#), [Jason W. Merrill](#), [Joe Groff](#), [John Benediktsson](#), [Jon Harper](#), [Jorge Acereda Macia](#), [Jose Antonio Ortega Ruiz](#), [Keith Lazuka](#), [Kibleur Christophe](#), [Mackenzie Straight](#), [Marc Fauconneau](#), [Matthew Willis](#), [Maxim Savchenko](#), [Maximilian Lupke](#), [Michael Judge](#), [Niklas Waern](#), [Peter Burns](#), [Phil Dawes](#), [Philipp Br^...schweiler](#), [Philipp Winkler](#), [Reginald Ford](#), [Ryan Murphy](#), [Sam Anklesaria](#), [Sampo Vuori](#), [Samuel Tardieu](#), [Sascha Matzke](#), [Slava Pestov](#), [Tim Wawrzynczak](#), [Walton Chan](#), [William Schlieper](#), [Yun](#), [Jonghyouk](#)



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**bignum>=** ( x y -- ? )  
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**drop** ( x -- )  
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**dup** ( x -- x x )  
**dupd** ( x y -- x x y )  
**enable-gc-events** ( -- )  
**eq?** ( obj1 obj2 -- ? )  
**fclose** ( alien -- )  
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**fixnum\*** ( x y -- z )  
**fixnum\*fast** ( x y -- z )  
**fixnum+** ( x y -- z )  
**fixnum+fast** ( x y -- z )  
**fixnum-** ( x y -- z )  
**fixnum-bitand** ( x y -- z )  
**fixnum-bitnot** ( x -- y )  
**fixnum-bitor** ( x y -- z )  
**fixnum-bitxor** ( x y -- z )  
**fixnum-fast** ( x y -- z )  
**fixnum-mod** ( x y -- z )  
**fixnum-shift** ( x y -- z )  
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**fixnum/mod** ( x y -- z w )  
**fixnum/mod-fast** ( x y -- z w )  
**fixnum<** ( x y -- ? )  
**fixnum<=** ( x y -- z )

**fixnum>** ( x y -- ? )  
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**float-u>** ( x y -- ? )  
**float-u>=** ( x y -- ? )  
**float/f** ( x y -- z )  
**float<** ( x y -- ? )  
**float<=** ( x y -- ? )  
**float=** ( x y -- ? )  
**float>** ( x y -- ? )  
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**bio**  
**bio-method**  
**bit-array**  
**bit-reader**  
**bit-set**  
**bit-writer**  
**bits**  
**block**  
**blue-bits**  
**book**  
**border**  
**bounds-error** ( index seq -- \* )  
**box**  
**box**  
**box-empty** ( box -- \* )  
**box-full** ( box -- \* )  
**box-parser**  
**br**  
**broadcast**  
**broadcast-words-must-have-no-outputs** ( group -- \* )  
**browser-gadget**  
**bsd-passwd**

**buffer**  
**buffered-port**  
**button**  
**button-down**  
**button-pen** ( button pen -- button pen )  
**button-up**  
**byte**  
**byte-reader**  
**byte-vector**  
**c-reader**  
**c-stream**  
**c-type** ( name -- c-type )  
**c-writer**  
**cache-assoc**  
**cache-entry**  
**caching-pen**  
**call-graph-node**  
**call-site**  
**can't-deploy-library-file** ( library -- \* )  
**cannot-annotate-twice** ( word -- \* )  
**cannot-be-inline** ( word -- \* )  
**cannot-find-source** ( definition -- \* )  
**cannot-send-synchronous-to-self** ( message thread -- \* )  
**canvas**  
**capitalized-prolog** ( name -- capitalized-prolog )  
**category-class**  
**category-range-class**  
**cell**  
**certificate-verify-error** ( result -- \* )  
**cfg**  
**char-array**  
**check-bit-set-failed** ( -- \* )

**check-method** ( class generic -- class generic )  
**check-mixin-class** ( mixin -- mixin )  
**check-node-error** ( node error -- \* )  
**check-use-error** ( value message -- \* )  
**checkbox**  
**checksum-state**  
**choice-parser**  
**chunking-seq**  
**circular**  
**circular-clumps**  
**circular-iterator**  
**circular-slice**  
**class-constraint**  
**class-partition**  
**clipboard**  
**closer**  
**clumps**  
**code-block**  
**code-blocks** ( -- blocks )  
**code-point**  
**code-size-zero** ( -- \* )  
**colon**  
**color**  
**color-bits**  
**column**  
**column-headers**  
**command-map** ( group class -- command-map )  
**comment**  
**comment-extension** ( -- value )  
**common-name-verify-error** ( expected got -- \* )  
**compiler-error** ( error -- )  
**completion-popup**



**complex**  
**complex-double**  
**complex-float**  
**compose** ( quot1 quot2 -- compose )  
**compose-state**  
**composed**  
**concatenation**  
**condition**  
**condition**  
**cons** ( car cdr -- cons )  
**consultation**  
**contained**  
**context**  
**continuation** ( -- continuation )  
**cookie**  
**copy-state**  
**copying-sizes**  
**count-down** ( count-down -- )  
**count-down-already-done** ( -- \* )  
**current-height**  
**curried**  
**curry** ( obj quot -- curry )  
**data-heap-room**  
**datagram-port**  
**debugger**  
**declared-effect**  
**decode-error** ( -- \* )  
**decoder**  
**def**  
**definition**  
**definition-after-usage** ( vregs old-bb new-bb -- \* )  
**delay**

**delay-parser**

**depends-on-class-predicate** ( class1 class2 result -- )

**depends-on-final** ( word -- )

**depends-on-flushable** ( word -- )

**depends-on-instance-predicate** ( object class result -- )

**depends-on-method** ( class generic method -- )

**depends-on-next-method** ( class generic next-method -- )

**depends-on-tuple-layout** ( class layout -- )

**deploy-gadget**

**deprecated-usages**

**deprecation-note** ( word usages -- )

**depth-bits**

**did-not-fail** ( -- value )

**directive**

**directory-entry**

**dirent**

**disallowed-char** ( char -- \* )

**disjoint-set**

**dispatch-statistics**

**disposable**

**div**

**diverging-recursion-error** ( word -- \* )

**division-by-zero** ( x -- \* )

**dlist**

**dlist-node**

**do-not-compile** ( word -- \* )

**doctype-decl**

**document**

**download-failed** ( response -- \* )

**downward-slice**

**drag**

**dredge-fry-state**

**ds-loc**  
**dtd**  
**duplex-stream**  
**duplicate-attr** ( key values -- \* )  
**duplicate-slot-names** ( names -- \* )  
**duration**  
**ebnf**  
**ebnf-action**  
**ebnf-any-character**  
**ebnf-choice**  
**ebnf-ensure**  
**ebnf-ensure-not**  
**ebnf-foreign**  
**ebnf-foreign-not-found** ( name -- \* )  
**ebnf-ignore**  
**ebnf-non-terminal**  
**ebnf-optional**  
**ebnf-range**  
**ebnf-repeat0**  
**ebnf-repeat1**  
**ebnf-rule**  
**ebnf-semantic**  
**ebnf-sequence**  
**ebnf-terminal**  
**ebnf-tokenizer**  
**ebnf-var**  
**ebnf-whitespace**  
**echelon-dispatch-engine**  
**edit**  
**edit-slot**  
**editor**  
**effect**

**effect-error** ( inferred declared -- \* )

**element**

**element-decl**

**elevator**

**email**

**empty-dlist** ( -- \* )

**empty-sequence** ( -- \* )

**encode-error** ( -- \* )

**encoder**

**ensure-not-parser**

**ensure-parser**

**entity-decl**

**entry**

**enum**

**enum-c-type**

**eq-wrapper**

**eql-wrapper**

**equivalence**

**error-display**

**error-list-gadget** ( -- gadget )

**error-type** ( error -- type )

**escaped-char-expected** ( -- \* )

**event-stream**

**exclude**

**expected** ( should-be was -- \* )

**expiry-check**

**extra-attrs** ( attrs -- \* )

**extra-words**

**fake-bignum**

**fake-call-next-method**

**fake-quotation**

**false-constraint**

**fd**  
**field**  
**file-change**  
**file-info** ( path -- info )  
**file-system-info** ( path -- file-system-info )  
**filter-writer**  
**flag**  
**float-array**  
**float-parse**  
**flow**  
**flushable-insn**  
**foldable-insn**  
**font**  
**frame**  
**free-destructor**  
**from**  
**from-to**  
**fsid**  
**fsid\_t**  
**gadget**  
**gadget-metrics**  
**gc-event**  
**gc-map**  
**gc-stats**  
**gif-frame**  
**gif-lzw**  
**gif-unexpected-eof** ( -- \* )  
**gl-error** ( -- )  
**glass**  
**global-var-ref**  
**glue**  
**graphics-control-extension**

gray  
green-bits  
grid  
grid-layout ( children grid-layout -- )  
grid-lines  
group  
group  
groups  
growing-circular  
handle  
hash-set  
hashtable  
heap  
help-lint-error ( error topic -- )  
history  
history  
hook-combination  
hostname  
hr  
icon  
identity-tuple  
ignore-close-stream  
image  
image-control  
image-descriptor ( -- value )  
image-gadget  
image-name  
image-pen  
immutable ( seq -- \* )  
implication  
inconsistent-next-method ( class generic -- \* )  
inconsistent-recursive-call-error ( word -- \* )

**incremental**  
**indirect**  
**inet**  
**inet4**  
**inet6**  
**inference-error**  
**inline-cache**  
**inline-recursive**  
**input**  
**input-mismatch-error** ( value expected-type word expected-types -- \* )  
**input-port**  
**inset**  
**insn**  
**insn-slot-spec**  
**inspector-gadget**  
**instruction**  
**int-array**  
**integer-expr**  
**integer-length-expected** ( obj -- \* )  
**interactor**  
**interpolate-var**  
**interpolated**  
**interval**  
**interval-constraint**  
**interval-map**  
**invalid-bit-count-target** ( object -- \* )  
**invalid-c-string** ( string -- \* )  
**invalid-count-down-count** ( count -- \* )  
**invalid-duplex-stream** ( -- \* )  
**invalid-header-string** ( string -- \* )  
**invalid-inet-server** ( addrspec -- \* )  
**invalid-ipv4** ( string reason -- \* )

**invalid-ipv6** ( host reason -- \* )  
**invalid-local-address** ( addrspec -- \* )  
**invalid-pixel-format-attributes** ( world attributes -- \* )  
**invalid-plist-object** ( object -- \* )  
**invalid-port** ( object -- \* )  
**invalid-row-variable** ( -- \* )  
**invalid-slot-name** ( name -- \* )  
**invalid-source-file-path** ( path -- \* )  
**invalid-struct-slot** ( token -- \* )  
**invalid-timestamp-format** ( -- \* )  
**invalid-width** ( bits #bits -- \* )  
**io-thread**  
**io-timeout** ( -- \* )  
**iota** ( n -- iota )  
**ipv4**  
**ipv6**  
**iterator**  
**just-parser**  
**kevent** ( kq changelist nchanges eventlist nevents timeout -- int )  
**kevent-array**  
**key-down**  
**key-gesture**  
**key-ref**  
**key-up**  
**kqueue-mx**  
**label**  
**label**  
**label-control**  
**label-fixup** ( label class -- )  
**labeled-gadget**  
**lambda**  
**left-recursion**



**let**  
**let-form-in-literal-error** ( -- \* )  
**lexer**  
**lexer-error**  
**lexer-parsing-word**  
**library** ( name -- library )  
**limit-exceeded** ( n stream -- \* )  
**limited-stream**  
**line**  
**line**  
**line-break** ( type -- )  
**line-gadget**  
**link**  
**linkage-error** ( error word class -- )  
**linked-assoc**  
**linked-error**  
**linked-thread**  
**links-popup**  
**listener-gadget**  
**literal** ( value -- literal )  
**literal-constraint**  
**live-interval** ( vreg -- live-interval )  
**live-range**  
**loading-gif**  
**loading-gif-error** ( gif-image -- \* )  
**loc**  
**local**  
**local-allocation-error** ( -- \* )  
**local-writer-in-literal-error** ( -- \* )  
**location**  
**log-entry**  
**log2-expects-positive** ( x -- \* )

**long-long-type**  
**longlong-array**  
**lookahead**  
**lookbehind**  
**lsb0-bit-reader**  
**lsb0-bit-writer**  
**lzw**  
**macosx-file-system-info**  
**macosx-monitor**  
**mailbox**  
**malformed-base64** ( -- \* )  
**malformed-ipv4** ( sequence -- \* )  
**malformed-port** ( -- \* )  
**malloc-ptr**  
**manifest**  
**mapping**  
**margin**  
**mark-sweep-sizes**  
**max-heap**  
**measured-stream**  
**memo-entry**  
**memory-stream**  
**merge** ( from to merge quot -- )  
**mersenne-twister**  
**message-contains-dot** ( message -- \* )  
**metrics**  
**min-heap**  
**mirror**  
**mismatched** ( open close -- \* )  
**misplaced-directive** ( directive -- \* )  
**missing-bom** ( -- \* )  
**missing-close** ( -- \* )

**missing-effect** ( word -- \* )  
**mixin-instance**  
**model**  
**model-field**  
**monitor**  
**more-completions**  
**more-than-8-components** ( -- \* )  
**msb0-bit-reader**  
**msb0-bit-writer**  
**multi-def**  
**multi-texture**  
**multiline-editor**  
**multiple-defs-error** ( -- \* )  
**multitags** ( -- \* )  
**mx**  
**mx-port**  
**name**  
**natural-loop**  
**negation**  
**nested-pane-stream**  
**nesting-observer**  
**no-article** ( name -- \* )  
**no-biassoc-deletion** ( -- \* )  
**no-c-type** ( word -- \* )  
**no-case** ( object -- \* )  
**no-compilation-unit** ( definition -- \* )  
**no-cond** ( -- \* )  
**no-current-vocab** ( -- vocab )  
**no-def-error** ( value -- \* )  
**no-edit-hook** ( -- )  
**no-entity** ( string -- \* )  
**no-group** ( string -- \* )

**no-initial-value** ( class -- \* )  
**no-library** ( name -- \* )  
**no-math-method** ( left right generic -- \* )  
**no-method** ( object generic -- \* )  
**no-next-method** ( method -- \* )  
**no-objc-type** ( name -- \* )  
**no-parent-directory** ( path -- \* )  
**no-random-number-generator** ( -- \* )  
**no-rule** ( rule parser -- \* )  
**no-such-color** ( name -- \* )  
**no-such-library** ( name word -- )  
**no-such-slot** ( slot -- \* )  
**no-such-symbol** ( name library -- \* )  
**no-such-symbol** ( name word -- )  
**no-tokenizer** ( name -- \* )  
**no-user** ( string -- \* )  
**no-vocab** ( name -- \* )  
**no-word-error** ( name -- \* )  
**no-word-in-vocab** ( word vocab -- \* )  
**no-world-found** ( -- \* )  
**node**  
**node**  
**node**  
**node**  
**node-missing-children** ( trees nodes -- \* )  
**node-missing-parent** ( trees nodes -- \* )  
**non-trivial-divisor** ( n -- \* )  
**nonexist-ns** ( name-string -- \* )  
**nonexistent-option** ( name -- \* )  
**not-a-byte-array** ( alien -- \* )  
**not-a-month** ( -- \* )  
**not-a-string** ( object -- \* )

**not-a-string** ( object -- \* )  
**not-a-tuple** ( object -- \* )  
**not-all-instructions-were-scheduled** ( old-bb new-bb -- \* )  
**not-class**  
**not-compiled** ( word error -- \* )  
**not-enough-bits** ( n bit-reader -- \* )  
**not-enough-bits** ( width n -- \* )  
**not-enough-characters** ( -- \* )  
**not-found-in-roots** ( path -- \* )  
**not-in-a-method-error** ( -- \* )  
**not-in-table** ( value -- \* )  
**not-spilled-error** ( vreg -- \* )  
**not-yes/no** ( text -- \* )  
**notags** ( -- \* )  
**notation-decl**  
**ns-image-invalid-data** ( -- \* )  
**ns-image-planar-images-not-supported** ( -- \* )  
**ns-image-unexpected-eof** ( -- \* )  
**ns-image-unknown-type** ( -- \* )  
**number-parse**  
**obj-ref**  
**objc-super**  
**offscreen-handle**  
**opener**  
**openssl-context**  
**operation**  
**optional-parser**  
**options**  
**or-class**  
**output-mismatch-error** ( value expected-type word expected-types -- \* )  
**output-port**  
**output-process-error** ( output process -- \* )

**p**  
**pack**  
**page-elt**  
**pane**  
**pane-block-stream**  
**pane-cell-stream**  
**pane-control**  
**pane-stream**  
**paragraph**  
**paragraph**  
**parse-error**  
**parse-failed** ( input word -- \* )  
**parse-result**  
**parser**  
**parser-not-found** ( name -- \* )  
**parts**  
**passwd**  
**passwd**  
**pasteboard**  
**pathname**  
**pb**  
**pdf**  
**pdf-block-stream**  
**pdf-info**  
**pdf-ref**  
**pdf-span-stream**  
**pdf-sub-stream**  
**pdf-writer**  
**peg-head**  
**pipe**  
**pixel-format**  
**pixel-format-attribute** ( pixel-format attribute-name -- value )

plain-auth  
plain-text-extension ( -- value )  
pointer  
popup  
port  
post-data  
pprinter  
pre/post-content ( string pre? -- \* )  
predicate-engine  
premature-close ( -- \* )  
presentation  
primitive-class  
process  
process-already-started ( process -- \* )  
process-failed ( process code -- \* )  
process-was-killed ( process -- \* )  
product  
profiler-gadget  
prolog  
promise  
promise-already-fulfilled ( promise -- \* )  
propagate-gesture ( gesture gadget -- )  
propagate-key-gesture ( gesture world -- )  
protoent  
public-id  
pull-xml  
qualified  
quote  
quoteless-attr ( -- \* )  
radio-control  
range  
range

**range-class**  
**range-parser**  
**ratio**  
**raw-port**  
**raw-response**  
**read-only-slot** ( slot -- \* )  
**real-usage**  
**realloc-error** ( ptr size -- \* )  
**rect**  
**recursive-quotation-error** ( quot -- \* )  
**recursive-state**  
**red-bits**  
**redefine-error** ( definition -- )  
**redefined-rule** ( name -- \* )  
**reference-expr**  
**regexp**  
**register-already-used** ( live-interval -- \* )  
**rename**  
**rendered-line**  
**repeat-button**  
**repeat0-parser**  
**repeat1-parser**  
**repeated-constructor-parameters** ( class effect -- \* )  
**repetition**  
**reply**  
**request**  
**response**  
**response**  
**restart** ( restart -- \* )  
**reverse-regexp**  
**reversed**  
**rgba**



**row-variable-can't-have-type** ( -- \* )  
**rs-loc**  
**rsa**  
**run-loop** ( -- run-loop )  
**run-loop-mx**  
**sample-buffers**  
**samples**  
**satisfy-parser**  
**sbuf**  
**script-class**  
**scroller**  
**search-deque**  
**search-field**  
**search-table**  
**section**  
**secure**  
**secure-config**  
**secure-context**  
**selected-line**  
**selection**  
**selector** ( selector -- alien )  
**semantic-parser**  
**send-gesture** ( gesture gadget -- )  
**separator-pen**  
**seq-parser**  
**server-port**  
**signal**  
**simple-lint-error** ( message -- \* )  
**single-combination**  
**single-texture**  
**slice**  
**slice-error** ( from to seq ? string -- from to seq )

**sliced-circular-clumps**  
**sliced-clumps**  
**sliced-groups**  
**slide-button**  
**slider**  
**slider-pen** ( slider pen -- pen )  
**slot-access**  
**slot-description**  
**slot-editor**  
**slot-name**  
**slot-ref**  
**slot-spec**  
**smtp-bad-authentication** ( response -- \* )  
**smtp-bad-mailbox-name** ( response -- \* )  
**smtp-command-not-implemented** ( response -- \* )  
**smtp-error** ( response -- \* )  
**smtp-exceeded-storage-allocation** ( response -- \* )  
**smtp-mailbox-unavailable** ( response -- \* )  
**smtp-server-busy** ( response -- \* )  
**smtp-syntax-error** ( response -- \* )  
**smtp-transaction-failed** ( response -- \* )  
**smtp-user-not-local** ( response -- \* )  
**sockaddr-in**  
**sockaddr-in6**  
**sockaddr-un**  
**solid**  
**source-editor**  
**source-file** ( path -- source-file )  
**source-file-error**  
**sp-parser**  
**specialized-array-vocab-not-loaded** ( c-type -- \* )  
**spill-slot**

**splitting-atomic-interval** ( -- \* )  
**splitting-too-early** ( -- \* )  
**splitting-too-late** ( -- \* )  
**spot**  
**ssl-handle**  
**stable-slice**  
**stack-effect-omits-dashes** ( -- \* )  
**stack-entry**  
**stack-frame**  
**staging-violation** ( word -- \* )  
**standard-combination**  
**star**  
**stat** ( path buf -- n )  
**statfs64** ( path buf -- int )  
**statfs64-array**  
**statvfs** ( path buf -- int )  
**stdin**  
**stencil-bits**  
**stream-exhausted** ( n stream word -- \* )  
**string-reader**  
**struct**  
**struct-bit-slot-spec**  
**struct-c-type**  
**struct-mirror**  
**struct-must-have-slots** ( -- \* )  
**struct-slot-spec**  
**style-stream**  
**sync-point**  
**synchronous**  
**system-id**  
**tabbed-gadget**  
**table**

**table**  
**table-cell**  
**table-row**  
**tag**  
**tag-dispatch-engine**  
**tagged-epsilon**  
**test-failure**  
**text**  
**text** ( string -- )  
**text-w/]]>** ( -- \* )  
**thread**  
**throws-on-eof-stream**  
**thumb**  
**tiff-lzw**  
**tile-pen**  
**timer**  
**timespec**  
**timestamp**  
**timeval**  
**timeval-array**  
**timezone**  
**tip**  
**tm**  
**token-parser**  
**tokenizer** ( -- word )  
**tombstone**  
**too-many->r** ( -- \* )  
**too-many-r>** ( -- \* )  
**too-many-redirects** ( -- \* )  
**too-many-samples** ( seq n -- \* )  
**too-many-symlinks** ( path n -- \* )  
**tool**

**topological-sort-failed** ( -- \* )  
**traceback-gadget**  
**track**  
**trailer** ( -- value )  
**trailing-characters** ( string -- \* )  
**transform-expansion-error** ( error continuation word -- \* )  
**transition-table**  
**true-constraint**  
**tuple-dispatch-engine**  
**tuple-removed** ( class -- \* )  
**type-mismatch-error** ( value expected-type word expected-types -- \* )  
**uchar-array**  
**ud**  
**ud\_operand**  
**ud\_operand-array**  
**uint-array**  
**uintptr\_t-array**  
**ulong-array**  
**unbalanced-branches-error** ( word quotes declareds actuals -- \* )  
**unbalanced-recursion-error** ( word height -- \* )  
**unclosed** ( -- \* )  
**unclosed-quote** ( -- \* )  
**undeclared-recursion-error** ( word -- \* )  
**undefined** ( -- \* )  
**undefined-log-level** ( -- \* )  
**unescaped**  
**unexpected** ( want got -- \* )  
**unexpected-end** ( -- \* )  
**unhandled-data** ( byte -- \* )  
**unimplemented** ( message -- \* )  
**uninferable** ( -- \* )  
**uninitialized-peek** ( insn -- \* )

**unix-error** ( errno message -- \* )  
**unix-file-info**  
**unix-file-system-info**  
**unix-random**  
**unix-system-call-error** ( args errno message word -- \* )  
**unknown-constructor-parameters** ( class effect unknown -- \* )  
**unknown-extension** ( n -- \* )  
**unknown-gl-platform** ( -- \* )  
**unknown-image-extension** ( extension -- \* )  
**unknown-macro-input** ( macro -- \* )  
**unknown-printf-directive** ( -- \* )  
**unopened** ( -- \* )  
**unreachable** ( -- \* )  
**unsupported-component-order** ( component-order component-type -- \* )  
**unsupported-gif-format** ( magic -- \* )  
**unsupported-platform** ( vocab requires -- )  
**update-object**  
**update-slot**  
**upgrade-buffers-full** ( -- \* )  
**upgrade-on-non-socket** ( -- \* )  
**upward-slice**  
**url**  
**user-input** ( string world -- )  
**utimbuf**  
**utmpx**  
**value-holder**  
**value-info** ( value -- info )  
**value-ref**  
**var-ref**  
**vector**  
**version-control-merge-conflict** ( -- \* )  
**versionless-prolog** ( -- \* )

**vfsquery**  
**viewport**  
**vm**  
**vocab** ( vocab-spec -- vocab )  
**vocab-author**  
**vocab-link**  
**vocab-manifest**  
**vocab-prefix**  
**vocab-tag**  
**void\*-array**  
**vreg-info**  
**vreg-insn**  
**vreg-not-new** ( vreg -- \* )  
**vreg-use**  
**wait-timeout** ( -- \* )  
**walker-gadget**  
**widthed**  
**window-handle**  
**with-options**  
**word**  
**word-break-gadget**  
**word-completion**  
**world**  
**world-attributes**  
**world-error**  
**wrapper**  
**wrong-values** ( quot call-site -- \* )  
**xml**  
**xml-chunk**  
**xml-error-at** ( class -- obj )  
**zone**

**Singleton classes**

\$

\$unix

+nil+

+optimized+

+pic+

+profiling+

+unknown+

+unoptimized+

----

A

ABGR

ARGB

BGR

BGRA

BGRX

DEPTH

DEPTH-STENCIL

INTENSITY

L

LA

LETTER-class

Letter-class

R

RG

RGB

RGBA

RGBX

SSLv2

SSLv23

SSLv3

TLSv1

XBGR



**XRGB**

**^**

**^unix**

**alpha-class**

**anticip-analysis**

**any-rep**

**arm**

**ascii**

**ascii-class**

**avail-analysis**

**beginning-of-input**

**binary**

**blank-class**

**byte-integer-components**

**c-identifier-class**

**c-io-backend**

**cache-observer**

**case-insensitive**

**cdecl**

**char-16-rep**

**char-completion**

**char-elt**

**char-scalar-rep**

**close-action**

**cocoa-ui-backend**

**control-character-class**

**copy-action**

**core-text-renderer**

**crc32**

**cut-action**

**dead-analysis**

**delete-action**

deprecation-observer  
digit-class  
doc-elt  
dot  
dotall  
double-2-rep  
double-rep  
down-action  
end-of-file  
end-of-input  
error-renderer  
fastcall  
float-11-11-10-components  
float-32-u-8-components  
float-4-rep  
float-components  
float-regs  
float-rep  
freebsd  
full-interval  
gain-focus  
gif-image  
haiku  
half-components  
hex-digit-class  
history-completion  
input-parameter  
inspector-renderer  
int-4-rep  
int-integer-components  
int-regs  
int-rep

**int-scalar-rep**  
**invalidate-crossref**  
**java-blank-class**  
**java-printable-class**  
**lambda-parser**  
**latin1**  
**left-action**  
**letter-class**  
**link-renderer**  
**linux**  
**live-analysis**  
**longlong-2-rep**  
**longlong-scalar-rep**  
**lose-focus**  
**macosx**  
**math-combination**  
**method-renderer**  
**mingw**  
**motion**  
**mouse-enter**  
**mouse-leave**  
**mouse-scroll**  
**multiline**  
**netbsd**  
**new-action**  
**no-auth**  
**non-newline-blank-class**  
**ns-image**  
**null-encoding**  
**null-reader**  
**null-writer**  
**one-char-elt**

**one-line-elt**  
**one-word-elt**  
**open-action**  
**openbsd**  
**openssl**  
**optimizing-compiler**  
**paste-action**  
**pending-analysis**  
**ppc.32**  
**ppc.64**  
**punctuation-class**  
**redo-action**  
**restart-renderer**  
**reversed-regexp**  
**revert-action**  
**right-action**  
**save-action**  
**save-as-action**  
**seek-absolute**  
**seek-end**  
**seek-relative**  
**select-all-action**  
**short-8-rep**  
**short-integer-components**  
**short-scalar-rep**  
**solaris**  
**source-file-renderer**  
**stack-entry-renderer**  
**stdcall**  
**t**  
**tagged-rep**  
**terminator-class**

thiscall  
trivial-renderer  
u-10-10-10-2-components  
u-24-8-components  
u-24-components  
u-5-5-5-1-components  
u-5-6-5-components  
u-9-9-9-e5-components  
ubyte-components  
ubyte-integer-components  
uchar-16-rep  
uchar-scalar-rep  
udis-disassembler  
uint-4-rep  
uint-components  
uint-integer-components  
uint-scalar-rep  
ulonglong-2-rep  
ulonglong-scalar-rep  
undo-action  
uninitialized-analysis  
unix-lines  
unmatchable-class  
up-action  
updater  
ushort-8-rep  
ushort-components  
ushort-integer-components  
ushort-scalar-rep  
utf16  
utf16be  
utf16le

utf8  
vocab-completion  
vocab-renderer  
void  
wince  
winnt  
word-boundary-class  
word-break  
word-elt  
word-renderer  
word-start-elt  
x86.32  
x86.64  
zoom-in-action  
zoom-out-action

## Union classes

##allocation  
##read  
##write  
8-bit-encoding  
?dlist-node  
?string  
abi  
abstract-clumps  
abstract-groups  
abstract-inet  
action  
alien-call-insn  
alpha-channel  
alpha-channel-precedes-colors  
assoc  
backward-analysis

**boolean**  
**boolean**  
**bsd**  
**c-ptr**  
**c-type-name**  
**callable**  
**checksum**  
**chunking**  
**clobber-insn**  
**component-order**  
**component-type**  
**conditional-branch-insn**  
**dataflow-analysis**  
**def-is-use-insn**  
**definition** ( defspec -- seq )  
**definition-completion**  
**deque**  
**dtd-acceptable**  
**dtd/f**  
**factor-call-insn**  
**final-insn**  
**fixed-length**  
**float-vector-rep**  
**forward-analysis**  
**fried**  
**gc-map-insn**  
**general-compare-insn**  
**growable**  
**hairy-clobber-insn**  
**id**  
**immediate**  
**immediate**

**immutable-sequence**  
**inert-arithmetic-tag-untag-insn**  
**inert-bitwise-tag-untag-insn**  
**inert-tag-untag-insn**  
**initial-insn**  
**inspected-sequence**  
**int-vector-rep**  
**integer**  
**irrelevant**  
**lexical**  
**list**  
**listener-completion**  
**literal-insn**  
**memory-insn**  
**null**  
**null-stream**  
**nullable-string**  
**number**  
**operand**  
**packed-components**  
**pinned-c-ptr**  
**plain-writer**  
**ppc**  
**profiler-renderer**  
**rational**  
**real**  
**ref**  
**reg-class**  
**representation**  
**scalar-compare-insn**  
**scalar-rep**  
**sequence**



set  
signed-int-vector-rep  
signed-unnormalized-integer-components  
simple-class  
slice-chunking  
slot-insn  
special  
specialized-array  
stack-insn  
subseq-chunking  
topic  
unix  
unnormalized-integer-components  
unsigned-int-vector-rep  
unsigned-unnormalized-integer-components  
value-type  
vector-rep  
virtual-sequence  
vocab-spec  
windows  
word-break  
x86  
xml-data  
xml-error

## **Intersection classes**

lambda-macro  
lambda-memoized  
lambda-method  
object

## **Predicate classes**

\$

\$unix

+nil+  
+optimized+  
+pic+  
+profiling+  
+unknown+  
+unoptimized+

----

1.0name-char

1.0name-start

1.1name-char

1.1name-start

A

ABGR

ARGB

BGR

BGRA

BGRX

DEPTH

DEPTH-STENCIL

INTENSITY

L

LA

LETTER

LETTER-class

Letter

Letter-class

R

RG

RGB

RGBA

RGBX

SSLv2

**SSLv23**

**SSLv3**

**TLSv1**

**XBGR**

**XRGB**

**^**

**^unix**

**alias**

**alien-callback-type-word**

**alien-function-alias-word**

**alien-function-word**

**alpha**

**alpha-class**

**anticip-analysis**

**any-rep**

**arm**

**array-capacity**

**ascii**

**ascii-class**

**avail-analysis**

**beginning-of-input**

**binary**

**blank**

**blank-class**

**builtin-class**

**byte-integer-components**

**c-identifier-class**

**c-io-backend**

**c-type-word**

**cache-observer**

**case-insensitive**

**cdecl**

**char-16-rep**  
**char-completion**  
**char-elt**  
**char-scalar-rep**  
**character**  
**class** ( object -- class )  
**close-action**  
**cocoa-ui-backend**  
**constant**  
**consult-method** ( word consultation -- )  
**contained-tag**  
**control**  
**control-character-class**  
**copy-action**  
**core-text-renderer**  
**crc32**  
**cut-action**  
**dead-analysis**  
**default-method**  
**deferred**  
**delete-action**  
**deprecation-observer**  
**digit**  
**digit-class**  
**doc-elt**  
**dot**  
**dotall**  
**double-2-rep**  
**double-rep**  
**down-action**  
**empty-intersection**  
**empty-union**

**end-of-file**  
**end-of-input**  
**enum-c-type-word**  
**error-renderer**  
**extend**  
**fastcall**  
**float-11-11-10-components**  
**float-32-u-8-components**  
**float-4-rep**  
**float-components**  
**float-regs**  
**float-rep**  
**freebsd**  
**fried-callable**  
**fry-specifier**  
**full-interval**  
**gain-focus**  
**generic**  
**gif-image**  
**grapheme-control**  
**haiku**  
**half-components**  
**hex-digit-class**  
**highlighted-word**  
**history-completion**  
**hook-generic**  
**immutable-tuple-class**  
**input-parameter**  
**inspector-renderer**  
**int-4-rep**  
**int-integer-components**  
**int-regs**

**int-rep**  
**int-scalar-rep**  
**intersection-class**  
**invalidate-crossref**  
**java-blank-class**  
**java-printable-class**  
**lambda-parser**  
**lambda-word**  
**latin1**  
**left-action**  
**letter**  
**letter-class**  
**link-renderer**  
**linux**  
**listener-command**  
**listener-operation**  
**live-analysis**  
**local**  
**local-reader**  
**local-writer**  
**longlong-2-rep**  
**longlong-scalar-rep**  
**lose-focus**  
**macosx**  
**macro**  
**math**  
**math-class**  
**math-combination**  
**math-generic**  
**math-partial**  
**memoized**  
**method** ( class generic -- method/f )

method-renderer  
mingw  
mixin-class  
motion  
mouse-enter  
mouse-leave  
mouse-scroll  
multiline  
netbsd  
new-action  
no-auth  
non-newline-blank-class  
nontrivial-anonymous-complement  
nontrivial-anonymous-intersection  
not-integer  
not-simple  
ns-image  
null-encoding  
null-reader  
null-writer  
one-char-elt  
one-line-elt  
one-word-elt  
open-action  
open-tag  
openbsd  
openssl  
optimizing-compiler  
pair  
parsing-word  
paste-action  
pending-analysis

**pinned-alien**  
**ppc.32**  
**ppc.64**  
**predicate**  
**predicate-class**  
**predicate-engine-word**  
**primitive**  
**printable**  
**protocol**  
**punctuation-class**  
**reader**  
**reader-method**  
**redo-action**  
**register**  
**register-128**  
**register-16**  
**register-32**  
**register-64**  
**register-8**  
**restart-renderer**  
**reversed-regexp**  
**revert-action**  
**right-action**  
**runnable-vocab**  
**save-action**  
**save-as-action**  
**secure-inet**  
**seek-absolute**  
**seek-end**  
**seek-relative**  
**select-all-action**  
**short-8-rep**



**short-integer-components**  
**short-scalar-rep**  
**simple-element**  
**simple-generic**  
**single-generic**  
**singleton-class**  
**solaris**  
**source-file-renderer**  
**spacing**  
**specific-button-down**  
**specific-button-up**  
**specific-drag**  
**stack-entry-renderer**  
**standard-generic**  
**stdcall**  
**string-array**  
**string-type**  
**struct-class**  
**symbol**  
**t**  
**tagged-rep**  
**terminator-class**  
**thiscall**  
**tracked-disposable**  
**tracked-malloc-ptr**  
**trivial-renderer**  
**tuple-class**  
**tuple-layout-array**  
**typed-gensym**  
**typed-lambda-word**  
**typed-word**  
**typedef-word**

u-10-10-10-2-components  
u-24-8-components  
u-24-components  
u-5-5-5-1-components  
u-5-6-5-components  
u-9-9-9-e5-components  
ubyte-components  
ubyte-integer-components  
uchar-16-rep  
uchar-scalar-rep  
udis-disassembler  
uint-4-rep  
uint-components  
uint-integer-components  
uint-scalar-rep  
ulonglong-2-rep  
ulonglong-scalar-rep  
uncased  
undo-action  
unexpected-eof ( word -- \* )  
uninitialized-analysis  
union-class  
unix-lines  
unmatchable-class  
up-action  
updater  
ushort-8-rep  
ushort-components  
ushort-integer-components  
ushort-scalar-rep  
utf16  
utf16be

**utf16le**

**utf8**

**value-word**

**vm-error**

**vocab-completion**

**vocab-renderer**

**void**

**wince**

**winnt**

**word-boundary-class**

**word-break**

**word-elt**

**word-link**

**word-renderer**

**word-start-elt**

**writer**

**writer-method**

**x86.32**

**x86.64**

**zoom-in-action**

**zoom-out-action**